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12) binding stably to HLA molecules of the A3, A11 type,  
-(79)LEDLLMGTL(87) (residues 79 to 87 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A29, B44 type,  
-(89)IVCPICSQK(97) (residues 89 to 97 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A3, A11 type.

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REMARKS

Responsive to the requirement for submission of a Sequence Listing, imposed in the outstanding Official Action, the same is provided herewith, attached to the present amendment, in paper and disk formats. Applicants hereby state that the attached paper and computer-readable copies have the same content and introduce no new matter into the present application.

In this regard, the specification and claims have been amended so that they are commensurate with the submission of the present Sequence Listing.

A substitute specification is provided, together with a marked-up copy of the changes made to the specification. The revised specification contains no new matter.

In view of the above, it is respectfully submitted that the above-identified application complies with the requirements of patent applications containing nucleotide sequences and/or amino acid sequence disclosures.

The outstanding Official Action also required the submission of an oath or declaration of the inventors. As such, a declaration of the inventors is provided with the present amendment.

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Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

YOUNG & THOMPSON

By Philip A. DuBois  
Philip A. DuBois  
Agent for Applicants  
Registration No. 50,696  
745 South 23rd Street  
Arlington, VA 22202  
Telephone: 521-2297

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 5 has been amended as follows:

5. (twice amended) Polyepitopic fragment of the E6 protein of HPV according to claim 1, characterized in that it corresponds to the fragment of 30 amino acids delimited by the amino acids located in positions 15 and 44 of the peptide sequence of the E6 protein of HPV, and characterized by the peptide sequence SEQ ID NO: 4 as follows:

(15)RPRKLPQLCTELQTTIHDIILECVYCKQQL(44)

said fragment containing 9 epitopes binding stably to at least one of the 8 HLA molecules of the following types: A2, A11, A29, B7, B8, B35, B44, or B51, said epitopes being the following:

- (15)RPRKLPQL(22) (residues 15 to 22 of SEQ ID NO: 2) binding stably to HLA molecules of the B7 or B35 type,
- (18)KLPQLCTEL(26) (residues 18 to 26 of SEQ ID NO: 2) binding stably to HLA molecules of the A2 type,
- (19)LPQLCTEL(26) (residues 19 to 26 of SEQ ID NO: 2) binding stably to HLA molecules of the B51 type,
- (21)QLCTELQTTI(30) (residues 21 to 30 of SEQ ID NO: 2) binding stably to HLA molecules of the A2 type,
- (24)TELQTTIHDI(33) (residues 24 to 33 of SEQ ID NO: 2) binding stably to HLA molecules of the A29 or B44 type,
- (29)TIHDIILRCV(38) (residues 29 to 38 of SEQ ID NO: 2) binding stably to HLA molecules of the A2 type,
- (33)IILECVYCK(41) (residues 33 to 41 of SEQ ID NO: 2) binding stably to HLA molecules of the A11 type,
- (35)LECVYCKQQL(44) (residues 35 to 44 of SEQ ID NO: 2) binding stably to HLA molecules of the A29 or B44 type,
- (37)CVYCKQQL(44) (residues 37 to 44 of SEQ ID NO: 2) binding stably to HLA molecules of the B8 type.

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Claim 6 has been amended as follows:

6. (twice amended) Polyepitopic fragment of the E6 protein of HPV according to claim 1, characterized in that it corresponds to the fragment of 17 amino acids delimited by the amino acids located in positions 46 and 62, or to the fragment of 22 amino acids delimited by the amino acids located in positions 46 and 67 of the peptide sequence of the E6 protein of HPV, this latter fragment being characterized by the peptide sequence SEQ ID NO: 6 as follows:

(46)RREVDFAFRDLCIVYRDGNPY(67)

said fragment containing 6 epitopes binding stably to at least one of the 10 HLA molecules of the following types: A2, A3, A11, A24, A29, B7, B27, B35, B44, or B51, said epitopes being the following:

-(46)RREVDFAFR(55) (residues 46 to 55 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,

-(49)VYDFAFRDL(57) (residues 49 to 57 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A24 type,

-(50)YDFAFRDL(57) (residues 50 to 57 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,

-(52)FAFRDLCIV(60) (residues 52 to 60 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A2, B35, B51, or B7 type,

-(54)FRDLCIVYR(62) (residues 54 to 62 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A3 or A11 type,

-(59)IVYRDGNPY(67) (residues 59 to 67 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A3 or A11 type.

Claim 7 has been amended as follows:

7. (twice amended) Polyepitopic fragment of the E6 protein of HPV according to claim 1, characterized in that it corresponds to the fragment of 29 amino acids delimited by the amino acids located in positions 80 and 108 of the peptide sequence of the E6 protein of HPV, this latter

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fragment being characterized by the peptide sequence SEQ ID NO: 8 as follows:

(80)ISEYRHYCYSLYGTTLEQQYNKPLCDLLI(108)

said fragment containing 6 epitopes binding stably to at least one of the 10 HLA molecules of the following types: A1, A3, A11, A24, A29, B7, B18, B35, B44, or B51, said epitopes being the following:

- (80)ISEYRHYCY(88) (residues 80 to 88 of SEQ ID NO: 2) binding stably to HLA molecules of the A1 or B18 type,

- (81)SEYRHYCY(88) (residues 81 to 88 of SEQ ID NO: 2) binding stably to HLA molecules of the A29 or B44 type,

- (87)CYSLYGTTL(95) (residues 87 to 95 of SEQ ID NO: 2) binding stably to HLA molecules of the A24 type,

- (94)TLEQQYNK(101) (residues 94 to 101 of SEQ ID NO: 2) binding stably to HLA molecules of the A3 or A11 type,

- (95)LEQQYNKPL(103) (residues 95 to 103 of SEQ ID NO: 2) binding stably to HLA molecules of the A29 or B44 type,

- (101)KPLCDLLI(108) (residues 101 to 108 of SEQ ID NO: 2) binding stably to HLA molecules of the B7, B35 or B51 type.

Claim 8 has been amended as follows:

8. (twice amended) Polyepitopic fragment of the E6 protein of HPV according to claim 1, characterized in that it corresponds to the fragment of 22 amino acids delimited by the amino acids located in positions 118 and 139 of the peptide sequence of the E6 protein of HPV, this latter fragment being characterized by the peptide sequence SEQ ID NO: 10 as follows:

(118)CPEEKQRHLDKKQRFHNIRGRW(139)

said fragment containing 6 epitopes binding stably to at least one of the 7 HLA molecules of the following types: A24, B8, B18, B27, B35, B44, or B51, said epitopes being the following:

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- (118) CPEEKQRHL(126) (residues 118 to 126 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B8, B18, B35, B51 type,  
- (119) PEEKQRHL(126) (residues 119 to 126 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B44 type,  
- (127) DKKQRFHNI(135) (residues 127 to 135 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B8 type,  
- (128) KKQRFHNIR(136) (residues 128 to 136 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,  
- (130) QRFHNIRGRW(139) (residues 130 to 139 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,  
- (131) RFHNIRGRW(139) (residues 131 to 139 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A24 type.

Claim 11 has been amended as follows:

11. (twice amended) Polyepitopic fragment of the E7 protein of HPV according to claim 9, characterized in that it corresponds to the fragment of 23 amino acids delimited by the amino acids located in positions 3 and 25 of the peptide sequence of the E7 protein of HPV, this latter fragment being characterized by the peptide sequence SEQ ID NO: 14 as follows:

(3) GDTPTLHEYMLDLQPETTDLYCY(25)

said fragment containing 5 epitopes binding stably to at least one of the 6 HLA molecules of the following types: A1, A2, B18, B35, B44 or B62, said epitopes being the following:

- (3) GDTPTLHEY(11) (residues 3 to 11 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B44 type,  
- (5) TPTLHEYML(13) (residues 5 to 13 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B35 type,  
- (11) YMLDLQPETT(20) (residues 11 to 20 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A2 type,  
- (15) LQPETTDLY(23) (residues 15 to 23 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B62 type,  
- (16) QPETTDLYCY(25) (residues 16 to 25 of SEQ ID NO: 12)

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binding stably to HLA molecules of the A1 or B18 type.

Claim 12 has been amended as follows:

12. (twice amended) Polyepitopic fragment of the E7 protein of HPV according to claim 9, characterized in that it corresponds to the fragment of 17 amino acids delimited by the amino acids located in positions 44 and 60 of the peptide sequence of the E7 protein of HPV, this latter fragment being characterized by the peptide sequence SEQ ID NO: 16 as follows:

(44)QAEPDRAHYNIVTFCK(60)

said fragment containing 4 epitopes binding stably to at least one of the 6 HLA molecules of the following types: A1, A3, A11, A29, B7, B18, B35, or B44, said epitopes being the following:

- (44)QAEPDRAHY(52) (residues 44 to 52 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A1 or B18 type,

- (45)AEPDRAHY(52) (residues 45 to 52 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A29 or B44 type,

- (46)EPDRAHYNIV(55) (residues 46 to 55 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B7 or B35 type,

- (53)NIVTFCK(60) (residues 53 to 60 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A3 or A11 type.

Claim 13 has been amended as follows:

13. (twice amended) Polyepitopic fragment of the E7 protein of HPV according to claim 9, characterized in that it corresponds to the fragment of 19 amino acids delimited by the amino acids located in positions 79 and 97 of the peptide sequence of the E7 protein of HPV, this latter fragment being characterized by the peptide sequence SEQ ID NO: 18 as follows:

(79)LEDLLMGTLGIVCPICSQK(97)

said fragment containing 4 epitopes binding stably to at

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least one of the 5 HLA molecules of the following types: A2, A3, A11, A29 or B44, said epitopes being the following:

- (79) LEDLLMGTL(87) (residues 79 to 87 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A29 or B44 type,
- (82) LLMGTLGIV(90) (residues 82 to 90 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A2 type,
- (86) TLGIVCPI(93) (residues 86 to 93 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A2 type,
- (89) IVCPICSQK(97) (residues 89 to 97 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A3 or A11 type.

Claim 21 has been amended as follows:

21. (amended) Epitopes of the E6 protein of HPV selected from the following:

- (19) LPQLCTEL(26) (residues 19 to 26 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B51 type,
- (21) QLCTELQTTI(30) (residues 21 to 30 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A2 type,
- (24) TELQTTIHDI(33) (residues 24 to 33 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,
- (33) IILECVYCK(41) (residues 33 to 41 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A11 type,
- (35) LECVYCKQQL(44) (residues 35 to 44 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,
- (37) CVYCKQQL(44) (residues 37 to 44 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B8 type,
- (46) RREVDFAFR(55) (residues 46 to 55 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,
- (49) VYDFAFRDL(57) (residues 49 to 57 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A24 type,
- (50) YDFAFRDL(57) (residues 50 to 57 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,
- (52) FAFRDLICIV(60) (residues 52 to 60 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A2, B35, B51, or B7



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type,

- (54) FRDLCIVYR(62) (residues 54 to 62 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A3 or A11 type,
- (59) IVYRDGNPY(67) (residues 59 to 67 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A3 or A11 type,
- (81) SEYRHYCY(88) (residues 81 to 88 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,
- (87) CYSLYGTTL(95) (residues 87 to 95 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A24 type,
- (94) TLEQQYNK(101) (residues 94 to 101 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A3 or A11 type,
- (95) LEQQYNKPL(103) (residues 95 to 103 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A29 or B44 type,
- (101) KPLCDLLI(108) (residues 101 to 108 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B7, B35 or B51 type,
- (118) CPEEKQRHL(126) (residues 118 to 126 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B8, B18, B35, B51 type,
- (119) PEEKQRHL(126) (residues 119 to 126 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B44 type,
- (127) DKKQRFHNI(135) (residues 127 to 135 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B8 type,
- (128) KKQRFHNIR(136) (residues 128 to 136 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,
- (130) QRFHNIRGRW(139) (residues 130 to 139 of SEQ ID NO: 2)  
binding stably to HLA molecules of the B27 type,
- (131) RFHNIRGRW(139) (residues 131 to 139 of SEQ ID NO: 2)  
binding stably to HLA molecules of the A24 type.

Claim 22 has been amended as follows:

22. (amended) Epitopes of the E7 protein of HPV selected from the following:

- (3) GDTPTLHEY(11) (residues 3 to 11 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B44 type,
- (5) TPTLHEYML(13) (residues 5 to 13 of SEQ ID NO: 12)

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binding stably to HLA molecules of the B35 type,  
-(15)LQPETTDLY(23) (residues 15 to 23 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B62 type,  
-(16)QPETTDLYCY(25) (residues 16 to 25 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A1 or B18 type,  
-(45)AEPDRAHY(52) (residues 45 to 52 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A29, B44 type,  
-(46)EPDRAHYNIV(55) (residues 46 to 55 of SEQ ID NO: 12)  
binding stably to HLA molecules of the B7 or B35 type,  
-(53)NIVTFCK(60) (residues 53 to 60 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A3, A11 type,  
-(79)LEDLLMGTL(87) (residues 79 to 87 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A29, B44 type,  
-(89)IVCPICSQK(97) (residues 89 to 97 of SEQ ID NO: 12)  
binding stably to HLA molecules of the A3, A11 type.